

Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method for insertion of a tibia fixation member comprising:
gaining supra patella surgical access to an intermedullary canal of a proximal end of a tibia;

moving the fixation member substantially posterior to a patella; and
inserting the fixation member into a proximal end of the intermedullary canal.

2. (Currently Amended) The method of claim 1 further comprising:
providing a protective ~~sheet~~ sheath having a proximal end adjacent a femur and a distal end adjacent the proximal end of the tibia.

3. (Currently Amended) The method of claim 2 wherein the protective ~~sheet~~ sheath defines a proximal opening and a distal opening and a passageway between.

Duplicate Claim 3. (Canceled)

4. (Currently Amended) The method of claim 3 wherein the fixation member is inserted into the proximal end of the intermedullary canal through the protective ~~sheet~~ sheath.

5. (Currently Amended) The method of claim 3 further comprising utilizing a cutting member guided by the protective ~~sheet~~ sheath to access the intermedullary canal.

6. (Currently Amended) The method of claim 3 wherein the distal end of the protective ~~sheet~~ sheath is tapered to substantially engage a natural shape of the proximal end of the tibia.

7. (Currently Amended) The method of claim 3 wherein the protective ~~sheet~~ sheath provides protrusions adapted to engage an inner surface of the proximal end of the intermedullary canal.

8. (Currently Amended) The method of claim 3 wherein the distal end of the protective ~~sheet~~ sheath features pins for engaging the proximal end of the tibia.

9. (Currently Amended) The method of claim 3 wherein the protective ~~sheet~~ sheath is made of a substantially radiolucent material and has at least one radiopaque marker.

10. (Currently Amended) The method of claim 3 wherein the fixation member has one or more fixation pieces adapted to slide within the protective ~~sheet~~ sheath into the intermedullary canal.

11. (Original) The method of claim 3 wherein inserting further comprises utilizing a guide wire to guide the fixation member into the intermedullary canal.

12. (Original) The method of claim 11 wherein the fixation member is substantially planar and defines a passage to engage the guide wire.

13. (Original) The method of claim 11 further comprising utilizing a cutting instrument guided by the guide wire to access the intermedullary canal.

14. (Original) The method of claim 1 wherein the fixation member is substantially planar and has a plurality of apertures configured to accept bone engagement members.

15. (Original) The method of claim 14 further comprising: anchoring the fixation member to the tibia with a plurality of bone engagement members.

16. (Original) The method of claim 15 wherein the plurality of bone engagement members is a set of screws anchored through the apertures into the tibia at non-perpendicular angles to one another and to the fixation member.

17. (Currently Amended) The method of claim 1 further comprising:
providing a protective ~~sheet~~ sheath with at least one radiopaque marker, the protective ~~sheet~~ sheath defining a passage from a supra patella surgical site into the intermedullary canal;
providing a guide wire with at least one radiopaque marker, the guide wire passing within the passage defined by the protective ~~sheet~~ sheath into the intermedullary canal;
monitoring the position of the protective ~~sheet~~ sheath and guide wire by an image guidance system.

18. (Original) The method of claim 17 wherein the image guidance system comprises an X-ray device.

19. (Currently Amended) A method for insertion of a tibia fixation member comprising:
creating a supra patella surgical access site;
inserting a substantially tubular protective ~~sheet~~ sheath posterior to a patella such that a distal end is adjacent a proximal end of the tibia;
accessing the intermedullary canal of the tibia utilizing a cutting tool guided by the protective ~~sheet~~ sheath;
inserting the fixation member into a proximal end of the intermedullary canal; and
anchoring the fixation member to the tibia.

20. (Original) The method of claim 19 further comprising:
providing at least a portion of a guide wire into the intermedullary canal, the guide wire having a radiopaque marker.
21. (Currently Amended) The method of claim 19 wherein the protective ~~sheet~~ sheath is tapered on the distal end to substantially engage the natural curvature of the proximal end of the tibia.
22. (Original) The method of claim 19 wherein the fixation member defines a plurality of apertures for engaging bone engagement members and for engaging an insertion tool.
23. (Original) The method of claim 22 wherein inserting the fixation member further comprises utilizing an insertion tool with an inner shaft threaded to an outer tube on a proximal end and a gripping member on a distal end, the gripping member configured to releasably engage a proximal end of the fixation member.
24. (Withdrawn) A protective sheath for use in percutaneous insertion of a tibia fixation device, the protective sheath comprising:
a radiolucent body;
at least one radiopaque marker;
a distal end tapered to substantially engage a notch of a proximal end of a tibia.
25. (Withdrawn) The protective sheath of claim 24 wherein the body defines an opening on the distal end and an opening on the proximal end with a passageway between the openings.

26. (Withdrawn) The protective sheath of claim 25 further comprising a series of ratchets on the distal end suitable for anchoring into an opening of a intermedullary canal of proximal end of a tibia, the opening being accessible from a supra patella position.

27. (Withdrawn) The protective sheath of claim 25 further comprising one or more pointed protrusions on the distal end protruding substantially away from and parallel to the passageway.

28. (Withdrawn) A kit for performing a percutaneous insertion of a tibia fixation device comprising:

- a protective sheath defining a distal opening, a proximal opening and a passage between, the distal opening adapted to engage the proximal end of a tibia;

- a bone fixation member configured with a plurality of apertures for receiving bone engagement members and for receiving an insertion tool; and

- an insertion tool having an inner shaft movably fixed within an outer sleeve, the inner shaft and outer sleeve forming a grip at a distal end, the grip configured to releasably engage the bone fixation member.

29. (Withdrawn) The kit of claim 28 further comprising:

- a guide wire having a radiopaque marker attached thereto; and

- a plurality of bone engagement members.

30. (Withdrawn) The kit of claim 28 wherein the protective sheath has at least one attached radiopaque marker.

31. (Withdrawn) An insertion tool for inserting a tibia fixation device into a tibia, the tool comprising:

- an outer sleeve with a first grip half on a distal end;
- a threaded portion on a proximal end of the outer sleeve;
- an inner shaft passing through the distal end of the sleeve and defining a second grip half; and
- a threaded handle to interface with the threaded portion of the outer sleeve and attached to the inner shaft within the outer sleeve.

32. (Withdrawn) The tool of claim 31 further adapted to receive a guide wire along the outer sleeve, the guide wire leading from a supra patella surgical site into a proximal opening in the intermedullary canal of the tibia.

33. (Withdrawn) The tool of claim 31 further comprising at least one radiopaque marker.

34. (Withdrawn) A tibia fixation device comprising:
a substantially rigid body defining a plurality of apertures;
wherein one or more of the apertures is adapted to engage an insertion tool on a proximal end of the rigid body;
wherein one or more of the apertures is adapted to receive a bone engagement member;
wherein one or more of the apertures is adapted to allow a guide wire to pass through the rigid body, the guide wire proceeding from a supra patella surgical site to a proximal opening in an intermedullary canal of a tibia and proceeding along a route substantially posterior to a patella.

35. (Withdrawn) The device of claim 34 wherein the rigid body has an attached radiopaque marker.

36. (Withdrawn) The device of claim 34 wherein the rigid body comprises one or more rigid members.

37. (Withdrawn) The device of claim 36 wherein the rigid members are adapted to slide within a protective sheet into the proximal opening of the intermedullary canal.